EXECUTIVE SUMMARY

BACKGROUND

Private Fuel Storage L.L.C. (PFS) is a limited liability company owned by eight U.S. companies: Indiana-Michigan Power Company (American Electric Power), Entergy Corporation, GPU Nuclear Corporation, Xcel Energy, Florida Power and Light Company, Southern Nuclear Operating Company, Southern California Edison Company, and Genoa FuelTech, Inc. PFS has applied to the Nuclear Regulatory Commission (NRC) for a license to receive, transfer, and store spent nuclear fuel (SNF) from commercial nuclear power plants at a privately owned independent spent fuel storage installation (ISFSI) which it proposes to construct and operate [also called the Private Fuel Storage Facility (PFSF)]. PFS has identified a location for this facility on the Reservation of the Skull Valley Band of Goshute Indians (the Reservation) approximately 44 km (27 miles) west-southwest of Tooele, Utah. The proposed PFSF would be built on a 330-ha (820-acre) site about 6 km (3.5 miles) from the Skull Valley Band's village. In addition to the proposed PFSF, PFS proposes to construct and operate a 51-km (32-mile) rail line on public land administered by the U.S. Department of Interior's Bureau of Land Management (BLM). The proposed rail line is needed to transport SNF from the nearest main rail line to the proposed PFSF.

As part of evaluating the potential environmental impacts of the PFS proposal, this Final Environmental Impact Statement (FEIS) was prepared by the staff of the NRC, in cooperation with the U.S. Department of Interior's Bureau of Indian Affairs (BIA), BLM, and the U.S. Surface Transportation Board (STB). Under the requirements of the National Environmental Policy Act of 1969 (NEPA), NRC is the lead agency for preparing this FEIS, and BIA, BLM, and STB are Cooperating Agencies. The FEIS is a tool to help NRC and the Cooperating Agencies reach decisions regarding PFS's proposal—specifically, NRC must decide whether to grant or deny a 20-year license to PFS to receive, transfer, and store SNF on the Reservation. BIA's action is either to approve or disapprove a lease for up to 50 years between PFS and the Skull Valley Band for use of Reservation land to construct and operate the proposed PFSF. BLM's action is either to grant or deny one of two requests for rights-of way, including amending the existing land use plan if necessary, to address transporting SNF across BLM land from the existing rail line to the proposed PFSF site. STB's action is to grant or deny PFS's application for a license to construct and operate a new rail line to the proposed PFSF site.

The activities and potential environmental impacts associated with construction and operation of the proposed PFSF and rail line are described in this FEIS, including (1) the purpose of and the need for the proposed action, (2) alternatives to the proposed action, (3) the environmental resources that could be affected by the proposed action and alternatives, (4) the potential environmental consequences of the proposed action and alternatives, (5) recommended mitigation measures, and (6) the economic costs and benefits associated with the proposed action. The evaluation of the potential impacts is based on a comprehensive review of PFS's license application, its environmental report, related submittals, independent information sources, and written and oral comments on the Draft EIS (DEIS).

The Cooperating Federal Agencies sought public comments on the DEIS by (1) publishing a notice of availability for the DEIS in the *Federal Register* in which an opportunity to comment on the DEIS was offered and (2) posting the document on the NRC website, together with a form for submitting comments. In addition, the NRC and Cooperating Agencies conducted a series of four public

meetings to receive comments on the DEIS in Salt Lake City and Grantsville, Utah, and transcribed the public comments from approximately 145 people who spoke at these meetings. Public comments were accepted by U.S. mail, e-mail, and facsimile transmission for the entire 90-day public comment period set in the *Federal Register* notice. The NRC received 264 written documents, letters, e-mails, and faxes.

THE PROPOSED ACTION

The proposed action (Alternative 1) involves the construction and operation of the proposed PFSF at a site (designated as Site A) located in the northwest corner of the Reservation and a new rail line connecting the existing Union Pacific railroad to the site. The proposed PFSF would be designed to store a lifetime capacity of up to 40,000 metric tons of uranium (MTU) (44,000 tons) of SNF. The capacity of the proposed PFSF would be sufficient to store all the SNF from reactor sites owned by PFS members, as well as SNF from reactor sites that are not owned by PFS members.

Construction of the proposed PFSF would occur in three phases. Phase 1 construction, which would provide an operational facility, is planned to begin upon issuance of the NRC license and approval of the BIA lease and would be completed in approximately 18 months. About one-fourth of the storage area for the proposed PFSF would be constructed during Phase 1. Another one-fourth would be completed during Phase 2, with the remaining portion constructed during Phase 3. The maximum amount of SNF that the applicant could accept at the proposed PFSF over the term of the initial license and the lease is 40,000 MTU (44,000 tons) of SNF. Once the applicant has accepted 40,000 MTU of SNF, the applicant could not accept any additional SNF shipments, even if the applicant has begun to ship SNF off site.

The nearest main rail line is approximately 39 km (24 miles) north of the proposed site. PFS's preferred option for transporting SNF from the existing Union Pacific main line railroad to the site is to build a new rail line to the site. The new rail line, and its associated rail siding, would connect to the existing Union Pacific main rail line at Skunk Ridge (near Low, Utah) (see Figure ES.1). The proposed right-of-way for the rail corridor would be 51 km (32 miles) long and 60 m (200 ft) wide. It would run to the proposed PFSF site through public lands administered by BLM on the eastern side of the Cedar Mountains.

At commercial nuclear power plants, the SNF to be shipped to the proposed PFSF would be placed inside sealed metal canisters. These canisters would then be placed inside NRC-certified steel shipping casks for transport by rail to the new rail siding at Skunk Ridge. Dedicated trains—stopping only for crew changes, refueling, and periodic inspections—would be used to transport SNF from the existing reactor sites to Skull Valley. PFS expects that it would receive 1 to 2 trains, each carrying 2 to 4 shipping casks, per week from the reactor sites. The number of loaded spent fuel canisters (inside shipping casks) is estimated to be between 100 and 200 annually. Each canister would contain approximately 10 MTU of SNF.

At the proposed PFSF, a dry cask storage technology would be used. The sealed metal canisters containing the SNF would be unloaded from the shipping casks at the proposed PFSF, loaded into steel-and-concrete storage casks, and then placed on concrete pads for storage. The canister-based cask system for confining the SNF would be certified by NRC in accordance with NRC requirements

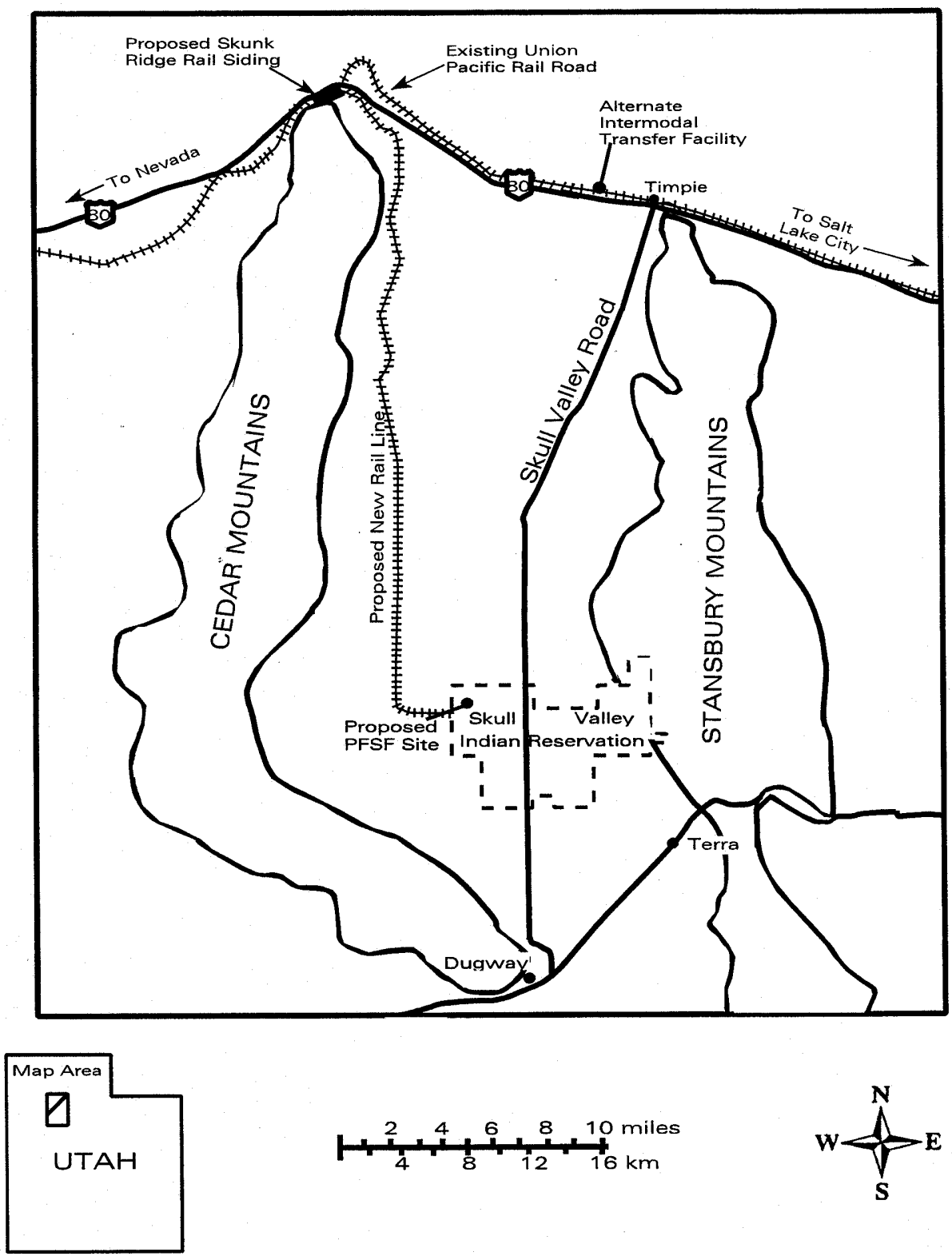

Figure ES.1. The proposed project area in Skull Valley, Utah.

(10 CFR Part 72). PFS proposes to employ the Holtec HI-STORM dual-purpose canister-based cask system for use at the proposed PFSF. PFS anticipates storing as many as 4,000 sealed metal canisters inside individual storage casks, to store a maximum of 40,000 MTU (44,000 tons) of SNF.

The proposed PFSF would be licensed by the NRC to operate for up to 20 years. The lease between the Skull Valley Band and PFS would have an initial term of 25 years with an option for an additional 25 years (for a total of 50 years). The applicant has indicated that it may seek to renew the NRC license for an additional 20 years (for a total of 40 years). If the NRC grants the application, and if PFS requests and obtains a renewed license and exercises the lease renewal option, the lease would extend for 10 years beyond the expiration of the NRC license. Since radiological decommissioning would normally be expected to be completed within approximately 24 months of NRC license expiration, in accordance with 10 CFR 72.54, there would be sufficient time to complete all decommissioning activities, including non-radiological decommissioning, during the term of the lease.

By the end of the licensed life of the proposed PFSF and prior to the expiration of the lease, it is expected that the SNF would have been shipped to a permanent repository. This is consistent with the NRC's Waste Confidence Decision (55 *Fed. Reg.* 38474; Sept. 18, 1990), which states that at least one mined geological repository will be available by the end of 2025. On December 6, 1999, the NRC issued a *Federal Register* Notice (64 *Fed. Reg.* 68005) which presented a status report on the Commission's review of the Waste Confidence Decision. The status report stated that "[t]he Commission is of the view that experience and developments since 1990 confirm the Commission's 1990 Waste Confidence findings." Service agreements (i.e., contracts) between PFS and companies storing SNF at the proposed PFSF will require that these companies remove all SNF from the proposed PFSF by the time the PFS license is terminated and PFS has completed its licensing or regulatory obligations under the NRC license. The service agreement requirement to remove the SNF from the proposed PFSF is not dependent upon the availability of a permanent geological repository. Therefore, if the PFS license is terminated prior to the availability of a permanent geological repository, the reactor licensees storing SNF at PFSF would continue to retain responsibility for the fuel and must remove it from the proposed PFSF site before termination of the PFS license.

PURPOSE AND NEED FOR THE PROPOSED ACTION

Storage of SNF at commercial nuclear reactors sites is an increasingly important concern to the companies operating these facilities. U.S. nuclear power plants were not designed to store all the SNF generated throughout their operating lives. To date, electric generation companies have been coping with the SNF storage problem primarily by employing two methods to increase at-reactor SNF storage capacity: (1) expanding the capacity of spent fuel pools to store SNF and (2) constructing ISFSIs at the reactor site (also called "at-reactor ISFSIs"). Although many U.S. nuclear power plants, including most of the plants owned by the PFS members, have already expanded the capacity of their spent fuel pools to store SNF, several are still running out of storage space. In fact, some spent fuel pools no longer have storage space sufficient to accommodate the unloading of an entire reactor core (full core offload capability). It is projected that 80 percent of U.S. reactors will lose full core off-load capability by 2010, without additional storage capacity.

The purpose of the proposed PFSF is to satisfy the need for an interim facility that would serve as a safe, efficient, and economical alternative to continued SNF storage at reactor sites. PFS has indicated that such an interim facility would ensure that (1) operation of a nuclear power plant would

not cease because of a lack of SNF pool storage capacity; (2) permanently shut-down reactors could be decommissioned sooner, resulting in a savings to the reactor licensees and earlier use of the land for other activities; and (3) for some reactor licensees, an economical alternative to at-reactor ISFSIs would be available. In addition, the proposed action would serve the Skull Valley Band's economic development, consistent with the trust responsibility of the Federal government.

In 1977, the U.S. Department of Energy (DOE) announced that the Federal government would accept and take title to the SNF from U.S. commercial power reactors. This policy was designed to meet the needs of nuclear reactor licensees for both interim and permanent disposition of SNF. A proposed permanent geological repository is projected to be completed by DOE and could begin receiving commercial reactor SNF by 2010. Before a permanent repository becomes available, however, several nuclear power generating companies anticipate that their on-site SNF pool storage capacity may become inadequate. As a result, these companies see an interim approach for storage of SNF in away-from-reactor facilities as a viable option instead of the use of at-reactor facilities for SNF storage. However, ownership and ultimate responsibility for the SNF would continue to remain with the originating companies until the ownership of the SNF is transferred to DOE.

ALTERNATIVES

This FEIS includes analysis of the environmental impacts of several alternative actions, both on and off the Reservation:

- Alternative 1: PFS's proposed action (as described above): Construction and operation of the proposed PFSF at the proposed location (Site A) on the Reservation, a new rail siding at Skunk Ridge, and a new rail line connecting the Skunk Ridge siding with Site A.
- Alternative 2: Construction and operation of the proposed PFSF at an alternative location (Site B) on the Reservation, with the same Skunk Ridge rail siding and rail line as described under Alternative 1.
- Alternative 3: Construction and operation of the proposed PFSF at Site A, and construction and operation of a new Intermodal Transfer Facility (ITF) near Timpie, Utah, with the use of heavy-haul vehicles to move SNF down the existing Skull Valley Road.
- Alternative 4: Construction and operation of the proposed PFSF at Site B, with the same ITF as described under Alternative 3.
- PFS also identified a site in Fremont County, Wyoming, as an alternative, secondary site, although PFS has elected to pursue the leasing and development of only the Skull Valley site. Although NRC compares the proposed site (i.e., Site A) to identified alternative sites, it makes the comparisons only to determine if such an alternative site is obviously superior to the proposed site (49 *Fed. Reg.* 9352, 9354, March 12, 1984).
- The no-action alternative is evaluated and compared with the other alternatives.

These alternatives are described in the following paragraphs.

Alternative 2

This alternative involves constructing the proposed PFSF at an alternative location (Site B) on the Reservation. This site is located about 800 m (0.5 mile) south of the proposed site (Site A) and is similar in terms of its environmental characteristics to the proposed site. Under this alternative, a new

rail line would be constructed from Skunk Ridge. The rail corridor through Skull Valley would be essentially identical to the one for the proposed action, but it would be about 1.6 km (1 mile) longer due to the slightly greater distance of Site B from the existing main rail line.

Alternative 3

Under this alternative, the proposed PFSF would be constructed at Site A, but transportation of SNF from the existing Union Pacific main rail line to the site would be accomplished by heavy-haul tractor/trailers. An Intermodal Transfer Facility (ITF) and rail siding would be built on land managed by BLM at the existing main rail line near Timpie, Utah, to transfer SNF shipping casks from rail cars to the heavy-haul vehicles, which would then transport the SNF along the existing Skull Valley Road to the site. No rail line would be built under this alternative.

Alternative 4

This alternative would be identical to Alternative 3 except that the proposed PFSF would be located at Site B on the Reservation rather than at Site A. The ITF and rail siding would be located near Timpie, and transport of SNF by heavy-haul vehicles would use Skull Valley Road. No rail corridor would be built under this alternative.

The Wyoming Alternate Site

PFS's site selection process identified a site in Fremont County, Wyoming, as a candidate site for the proposed PFSF. In this FEIS, the NRC staff compares the Wyoming site to the Skull Valley site to determine if the Wyoming site is obviously superior to the proposed PFSF site. The Wyoming site is located on privately owned land north of Shoshoni, Wyoming, about 39 km (24 miles) northeast of Riverton and about 9 km (6 miles) east of the Wind River Indian Reservation. The analysis assumes that the layout of a facility at the Wyoming site and its design would be similar to the proposed PFSF in Skull Valley. An existing railroad runs adjacent to the site and would require approximately 1.5 km (1 mile) of new rail construction for access to the site.

Although the Wyoming site is not being actively considered by PFS for the siting of an ISFSI, it is nevertheless appropriate for use by NRC in this FEIS for comparative purposes. Neither BLM's decision nor STB's decision involves the choice between the proposed site in Skull Valley and other alternative sites. However, under its government-to-government relationship with the Skull Valley Band and its trust responsibilities with the Band, BIA considers the Wyoming site to be an unreasonable alternative.

No-Action Alternative

The no-action alternative would be not to build the proposed PFSF in Skull Valley. Under the no-action alternative, NRC would deny the application for a license for the proposed PFSF. Under the no-action alternative, no lease would be approved by BIA between PFS and the Skull Valley Band, and the Skull Valley Band would be free to pursue alternative uses for the land in the northwest corner of the Reservation. Under the no-action alternative, no right-of-way approvals would be granted by BLM, and no amendments would be required for existing BLM land use plans. The public lands administered by BLM at the proposed Skunk Ridge rail siding location and along the proposed Skunk Ridge rail

corridor would be available for other uses compatible with existing land use plans. Under the no action alternative, STB would deny the application for a license for the proposed rail line.

ALTERNATIVES CONSIDERED BUT NOT ADDRESSED FURTHER IN THIS FEIS

In addition to the alternatives described above, this FEIS considers other alternatives to the proposed action. These alternatives include (1) a different privately owned away-from-reactor ISFSI; (2) shipment of SNF from reactor sites without sufficient storage space to reactor sites with additional SNF storage capacity; (3) alternatives that, in effect, eliminate the need for the proposed PFSF (e.g., the Federal government taking possession of and title to the SNF in a manner that would allow sufficient on-site storage to be maintained); (4) alternative technologies available for an operational ISFSI; and (5) transportation options for moving SNF cross-country to the location of the proposed PFSF, as well as transportation options within Skull Valley. The first three of these items were eliminated from detailed evaluation in this FEIS for a combination of reasons, including (a) the absence of any evidence that these options are actually viable, (b) the unavailability of sufficient detail upon which to base a detailed evaluation, and (c) the speculative nature of such options.

In regard to the alternatives involving other storage technologies available for operational ISFSIs or options for transporting SNF, as set forth in this FEIS, the alternatives proposed by the applicant are the most viable options and none of the other possible alternatives offered any obvious advantage over those alternatives already identified, as described above, for evaluation in this FEIS. Therefore, the storage technology alternatives and the transportation alternatives were eliminated from detailed evaluation in this FEIS.

POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION—ALTERNATIVE 1

Potential environmental impacts of the proposed action and its alternatives were evaluated against standardized significance criteria. These criteria are described in the dialogue box in this section. Table ES.1 summarizes the significance levels of the potential impacts for the Skull Valley alternatives addressed in this FEIS (i.e., Alternatives 1 through 4), and a brief discussion of the impacts to relevant environmental resource areas is presented in this section. Table ES.2 (at the end of this Executive Summary) gives a more detailed review and comparison of the potential impacts of the proposed action and alternatives. A detailed discussion of the impacts of the proposed action can be found in Chapters 4 and 5 of this FEIS. Further, any changes in information in Table ES.1 from that presented in the DEIS are also discussed in Chapters 4, 5, 6,7, and 8 of this FEIS.

Table ES.1. Summary of significance levels[a] of the combined potential impacts for the Skull Valley alternatives addressed in this FEIS

Potentially impacted resource or category	Proposed action (i.e., Site A with the rail corridor)—Alternative 1	Site B with the rail corridor—Alternative 2	Site A with the ITF—Alternative 3	Site B with the ITF—Alternative 4
Geology, minerals, and soils	SMALL	SMALL	SMALL	SMALL
Water resources				
Surface water	SMALL	SMALL	SMALL	SMALL
Flooding	SMALL TO MODERATE	SMALL TO MODERATE	SMALL	SMALL
Water use	SMALL	SMALL	SMALL	SMALL
Groundwater	SMALL	SMALL	SMALL	SMALL
Air quality	SMALL TO MODERATE	SMALL TO MODERATE	SMALL TO MODERATE	SMALL TO MODERATE
Ecological resources				
Vegetation	SMALL	SMALL	SMALL	SMALL
Wildlife	SMALL	SMALL	SMALL	SMALL
Wetlands	SMALL	SMALL	SMALL	SMALL
Perennial and ephemeral streams	SMALL	SMALL	SMALL	SMALL
Threatened and endangered species	SMALL	SMALL	SMALL	SMALL
Socioeconomics and community resources				
Human population	SMALL	SMALL	SMALL	SMALL
Housing	SMALL	SMALL	SMALL	SMALL
Education	SMALL	SMALL	SMALL	SMALL
Utilities	SMALL	SMALL	SMALL	SMALL
Solid and sanitary waste	SMALL	SMALL	SMALL	SMALL
Traffic	SMALL TO MODERATE	SMALL TO MODERATE	SMALL TO MODERATE	SMALL TO MODERATE
Economic structure[b]	SMALL TO MODERATE (but beneficial)	SMALL TO MODERATE (but beneficial)	SMALL TO MODERATE (but beneficial)	SMALL TO MODERATE (but beneficial)
Land use (including rangeland and impacts to military overflight operations)	SMALL TO MODERATE	SMALL TO MODERATE	SMALL	SMALL

Table ES.1. Continued

Potentially impacted resource or category	Proposed action (i.e., Site A with the rail corridor)—Alternative 1	Site B with the rail corridor—Alternative 2	Site A with the ITF—Alternative 3	Site B with the ITF—Alternative 4
Cultural resources	SMALL TO MODERATE	SMALL TO MODERATE	SMALL	SMALL
Human health impacts				
Non-radiological risks to workers	SMALL	SMALL	SMALL	SMALL
Radiological doses to the public	SMALL	SMALL	SMALL	SMALL
Radiological doses to workers	SMALL	SMALL	SMALL TO MODERATE	SMALL TO MODERATE
Radiological non-transportation accidents	SMALL	SMALL	SMALL	SMALL
Transportation of SNF	SMALL	SMALL	SMALL	SMALL
Radiological transportation accidents	SMALL	SMALL	SMALL	SMALL
Non-radiological transportation accidents	SMALL	SMALL	SMALL	SMALL
Noise	SMALL	SMALL	SMALL	SMALL
Scenic qualities	MODERATE	MODERATE	MODERATE	MODERATE
Recreation	SMALL	SMALL	SMALL	SMALL
Environmental justice	SMALL	SMALL	SMALL	SMALL

[a]Significance levels in this table represent the combination of impacts addressed in detail in Chapters 4 and 5 of this FEIS.

[b]Economic benefits to the Skull Valley Band would be large.

DETERMINATION OF THE SIGNIFICANCE OF POTENTIAL ENVIRONMENTAL IMPACTS

A standard of significance has been established by NRC (see NUREG-1437) for assessing environmental impacts. With the standards of the Council on Environmental Quality's regulations as a basis, each impact is to be assigned one of the following three significance levels:

- ***Small***. The environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
- ***Moderate***. The environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- ***Large***. The environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

Affected Area

The proposed PFSF site in Skull Valley would occupy undeveloped rangeland which has no unique habitats, no wetlands, and no surface water bodies or aquatic resources. There would thus be no impacts to these types of resources. The nearest resident is about 3.2 km (2 miles) away to the east-southeast. Approximately 94 ha (232 acres) on the Reservation would be cleared for the proposed PFSF and its access road. Of this cleared land, 57 ha (140 acres) would remain cleared for the life of the project. The remainder of the initially cleared land would be revegetated.

The proposed new rail line in Skull Valley would cross undeveloped public rangeland administered by the BLM. Approximately 314 ha (776 acres) would be initially cleared for the new rail line's right-of-way and 63 ha (155 acres) would be cleared for the life of the project (i.e., the remainder of the initially cleared land would be revegetated). No unique habitats exist in this area. The rail route would cross 32 arroyos (i.e., gullies or gulches cut by streams with ephemeral flows) at which culverts would be installed to maintain existing drainages. Grade crossings would be provided along the rail route at the intersections of existing unimproved roads and off-road vehicle paths.

Geology, Minerals, and Soils

Construction of the storage pad area of the proposed PFSF would disturb the existing soil profile. Topsoil removed from the site would be used in the construction of flood protection berms and would be available for reclamation of the lease site upon termination of the facility's license. Soils used in the soil-cement mat surrounding the concrete storage pads would be permanently lost, but this accounts for a very small percentage of similar soil in Skull Valley.

Large quantities of economic geologic resources (e.g., aggregate, railbed ballast) would be required during construction of the proposed PFSF and the rail line from Skunk Ridge. The locally available quantities of these materials appear to be adequate to supply the anticipated need. No more than 60 percent of the material for any individual resource that is available locally from five privately owned commercial sources would be needed for construction of the proposed PFSF or rail line. Since additional sources, including publically owned sand and gravel pits managed by BLM, are located

within the region, the lost resource impact would be small. Mineral resources located beneath the proposed PFSF site and along the rail corridor would be unavailable for exploitation during the life of the project, however, the mineral resources at these locations are not unique and similar resources are widely available in the region.

Water Resources

Large quantities of water (e.g., for dust control, soil compaction, and concrete cask manufacture) would be required for construction of the proposed PFSF and the rail line. Water for construction at the proposed PFSF would be supplied by new on-site wells and by tanker truck from off-site suppliers. On site wells would provide a small fraction of the total water used during construction of the proposed PFSF. During operation of the proposed PFSF, groundwater use is expected to be small. If the new on-site wells were to prove inadequate with respect to water quality or quantity, then additional wells may be drilled in other parts of the Reservation after additional NEPA review by BIA, if necessary. The impacts of withdrawing groundwater are expected to be small given the volume of water that would be withdrawn and the location of the other nearby wells; however, until test wells are drilled and their production capacity is checked, certainty of the impact is unknown. The mitigation measures the Cooperating Agencies propose be required with respect to groundwater withdrawal are set forth below under “Mitigation Measures.” Water would be provided to the rail line construction sites in tanker trucks by a local vendor. PFS has contacted commercial contractors in the area and has received assurance that the required volumes of water are readily available; these volumes represent a fraction of the available water resources in the area and would not disrupt other users of water in the area.

The proposed PFSF design includes earthen berms to redirect floodwaters around the storage pads and related facilities. The access road and rail line would cross channels that carry ephemeral run-off or drainage during wet seasons and surface water flow during floods. All drainage features under access route embankments, including the access road and the rail line, would be designed to carry floodwater volumes that would occur during the 100-year storm event. Some portions of the access road and rail line (but not safety-related structures such as the storage pads) could be inundated by as much as 1 m (3 ft) of floodwater during a flood of PMF severity. The presence of the PFSF and its access routes would not increase downstream flooding potential; however, for extreme flooding during construction, small to moderate impacts could result from soil erosion and sedimentation of surface water channels. Also, for extreme flooding during operation, some temporary water ponding would likely occur upstream of the access road and railroad culverts within the floodways associated with surface water runoff channels; however, these impacts are expected to be small. The mitigation measures Cooperating Agencies propose be required with respect to surface water are set forth below under “Mitigation Measures.”

Air Quality

The primary impact to air quality would be from dust emissions from construction areas at the Reservation site and the related transportation facilities. The temporary and localized effects of construction could produce occasional and localized moderate impacts on air quality in the immediate vicinity of the construction activity and small impacts elsewhere. Air quality impacts of operation would be small. Fugitive dust emissions would be minimized by mechanical dust control measures, such as surface wetting. The mitigation measures the Cooperating Agencies propose be required with respect to air quality are set forth below under “Mitigation Measures.”

Ecological Resources

Impacts would occur to ecological resources from the clearing and use of land in Skull Valley. However the impacts to both vegetation and wildlife would be small. A portion of the area cleared during construction of the proposed PFSF would be revegetated with crested wheatgrass. Planting crested wheatgrass would have little impact on vegetation because it is no more invasive than the non-native cheatgrass that already exists at the site, and crested wheatgrass is more fire resistant than cheatgrass. Areas along the proposed rail line would be revegetated with a seed mixture that consists primarily of native species. The establishment or seeding of crested wheatgrass or native plant species might reduce competition from non-native annual grasses and could reduce the consequences of periodic wildfires in Skull Valley. The mitigation measures the Cooperating Agencies propose be required with respect to establishment or seeding of plant species are set forth below under “Mitigation Measures.”

The rare Pohl’s milkvetch, a BLM special-status plant species, is known to inhabit a region about 3.7 km (2.3 miles) southeast of the center of the proposed storage pad area. Construction and operation of the proposed PFSF are not expected to impact the area where the Pohl’s milkvetch is located. A field survey of the proposed PFSF site did not reveal the presence of the Pohl’s milkvetch on-site. PFS intends to survey the proposed site again prior to construction. Should the Pohl’s milkvetch be found in areas that could be affected by construction and operation, mitigation measures have been identified to prevent inadvertent impacts, such as trampling, to this species. The mitigation measures the Cooperating Agencies propose be required with respect to the Pohl’s milkvetch are set forth below under “Mitigation Measures.”

No significant impacts would be expected to occur to wildlife during construction or operation of the proposed PFSF or its associated new rail line. The presence of these new facilities in Skull Valley would not create significant obstacles to the normal movement patterns of wildlife. Radiological doses to wildlife at the boundary of the proposed storage area would be well within acceptable levels for human exposure and would not be expected to create adverse impacts. PFS has proposed monitoring and surveillance programs to prevent wildlife habitation within the storage area. The mitigation measures the Cooperating Agencies propose be required with respect to wildlife monitoring and surveillance of the storage area are set forth below under “Mitigation Measures.”

Socioeconomics and Community Resources

Any impacts to socioeconomic and community resources should be readily absorbed by existing services and infrastructure in the region. The notable exceptions would be (a) potential temporary impacts to local traffic resulting from construction of the proposed PFSF and (b) disruption to and reduced availability of resources on two BLM grazing allotments. The traffic impacts to Skull Valley Road may involve a 138-percent increase in daily use during the first phase of construction of the proposed PFSF. The Cooperating Agencies recommend that consideration be given to avoiding or minimizing such impacts by appropriately scheduling the proposed PFSF-related traffic. The impacts to grazing resources would result from the proposed rail route cutting through pasture and allotment division fences that separate grazing herds and separate some grazing areas from livestock watering sources. Mitigation measures could be those such as the installation of appropriate cattle guards and gates, as well as to providing new water sources, to ensure that livestock watering sources are accessible on both sides of the rail routes. The mitigation measures the Cooperating Agencies

propose be required with respect to grazing resources are set forth below under “Mitigation Measures.”

Beneficial effects of the proposed action on the local economic structure would result from the creation of approximately 255 jobs during the peak of construction and approximately 45 jobs during PFSF operation. Many of these jobs are likely to be filled by workers from Tooele County or from other counties within commuting distance, as well as by local members of the Skull Valley Band. In addition to jobs, it is expected that construction and operation of the proposed PFSF would result in increased business for the Pony Express Convenience Store on the Reservation and for other businesses and suppliers in the area. Also, there would be a large benefit to the Skull Valley Band in the form of lease payments and additional employment opportunities for the duration of the lease.

Additional beneficial impacts on the economic structure of the impact area during the operational life of the proposed PFSF include state sales tax payments, incentive payments to Tooele County, local payroll, and other local expenditures. Payments to Tooele County have been estimated to be $91.2 million over the life of the PFSF (based on a proposed agreement negotiated between PFS and the County) (PFS/RAI2 1999). Local payroll during operation of the proposed PFSF has been estimated to be $81 million (based on PFS’s estimate of the number of positions and anticipated pay for each position, including benefits) (PFS/RAI2 1999). Other local expenditures, including operations support and utilities, have been estimated to be $79 million (based on PFS’s estimate of the number of personnel involved, and utilities based on the number of buildings and the estimated utility load for these buildings) (PFS/RAI2 1999). In addition, steel liners for the storage casks would be fabricated in the Salt Lake City or Tooele County area over a period of approximately 21 years and shipped by truck to the site on the Reservation, where they would be filled with concrete from the batch plant; the average number of weekly shipments to the site would be four (or 200 per year). The construction of casks and canisters has been estimated to be worth $747 million (PFS/RAI2 1999). The direct and indirect benefits of cask and liner construction would accrue to whatever jurisdiction hosts their manufacture.

In addition to impacts to the local economic structure, operation of the proposed PFSF would result in off-Reservation sales tax payments to the State of Utah, estimated to be $53.5 million (based on PFS’s review of the Utah tax structure) over the life of the proposed PFSF (PFS/RAI2 1999).

Cultural Resources

Based on the results of a thorough ethnographic and historic literature review, an intensive field cultural resources survey of the proposed PFSF site, and consultation process as required by Section 106 of the National Historic Preservation Act (NHPA), potential impacts to archaeological and historical resources from construction of the proposed PFSF are considered to be small. During the consultation process with the Skull Valley Band, other regional Federally Recognized Indian Tribes and other organizations, no traditional cultural properties have been identified within the project area. Construction of the new rail line along the western edge of Skull Valley would have small to moderate impacts. Some historic properties identified in the area of potential effect (APE) would be adversely affected. The most significantly adverse effect would be destruction of a small portion of the Hastings Cutoff of the California Trail, which the proposed rail line crosses at approximately a right angle. The NRC and Cooperating Agencies have developed—in consultation with the designated Utah SHPO, PFS, the Advisory Council on Historic Preservation, and other consulting parties—a draft Memorandum of Agreement (Agreement) and treatment plan for the cultural resources that could be

adversely affected. If the required BLM and STB approvals are granted, the treatment plan would be finalized prior to any construction or operation of the proposed rail line. The mitigation measures the Cooperating Agencies propose be required with respect to these cultural resources are set forth below under “Mitigation Measures.”

Indian Trust Assets

Indian trust assets are the land and the products of the land. The proposed lease would not result in significant environmental consequences to biotic or other resources that could not be mitigated. The lease would also be consistent with Tribal economic goals for the development of this portion of the Skull Valley Indian Reservation. The proposed lease includes provisions for decommissioning the proposed PFSF before the end of the lease term, and funding mechanisms to assure implementation of the decommissioning provisions of the lease.

This FEIS describes mitigation measures that would reduce adverse impacts to affected trust resources. Numerous other mitigation measures are incorporated into the design and operations of the proposed PFSF. If any unexpected impacts on Indian cultural resources were discovered during construction, these activities would cease; and the BIA and the Skull Valley Band would be notified immediately to determine the appropriate steps to take regarding further protections of such resources. The mitigation measures the Cooperating Agencies propose be required with respect to these cultural resources are set forth below under “Mitigation Measures.”

Human Health

Radiological impacts from SNF stored in Skull Valley under any alternative would be small. Dose calculations indicate that a hypothetical individual located at the boundary of the facility for 2,000 hours each year would receive a dose not more than a small fraction of the normal background radiation dose in the United States. Doses to workers would be higher but would be administratively controlled to levels below NRC’s regulatory limits.

Radiological doses to the public along SNF transportation routes from reactor sites to Skull Valley would be small and controlled by regulatory restrictions placed upon the licensed shipping casks to be used. Doses to train crews and workers would be administratively controlled to acceptable regulatory levels. The risk of a severe transportation accident is small.

Use of the proposed PFSF site (i.e., Site A) would result in the least radiological impact from routine operation among all Skull Valley alternatives considered because the nearest resident [i.e., 3.2 km (2 miles) away] is located farther away than if the facility were located at the alternative Site B [i.e., 3.1 km (1.9 miles)] or in Wyoming [i.e., 1.4 km (0.85 mile)]. The radiation doses from transportation using the proposed rail line would be less than the doses from the use of the ITF and heavy-haul vehicles on Skull Valley Road.

Noise

Noise impacts would result from construction equipment and earthwork activities, as well as from additional traffic associated with construction. Construction-related noise levels at the nearest residences on the Reservation would be about the same as the outdoor background noise levels given by EPA for a "quiet suburban street." Construction noise at the proposed Skunk Ridge rail siding

would be indistinguishable from the background traffic noise for vehicles traveling along the nearby Interstate 80. Therefore, any potential noise impacts from construction activity would be small. Noise impacts would also result from operation of the proposed PFSF, primarily from mobile sources associated with the delivery of the casks; however, the levels of these operational noises would be expected to produce only small impacts. Because of the remote location of the proposed rail line and the infrequent train traffic, noise impacts from operation of the rail line would also be expected to be small.

Scenic Qualities

Potentially adverse impacts to the scenic qualities of Skull Valley would occur because the proposed PFSF would be the only significant development in the largely undeveloped valley and scenic impacts therefore are judged to be moderate. While the Skull Valley Band has the option of retaining any or all the buildings and other improvements once the radiological decommissioning is completed, PFS has stated that it would be willing to remove the facility and related infrastructure at the end of the license period. PFS may be required to do so at the end of the lease period, at the discretion of the Skull Valley Band and the BIA. This would be an important measure for restoring the scenic qualities of Skull Valley.

Recreation

The proposed route and alignment of the rail line from Skunk Ridge passes within approximately 800 m (2,600 ft) of BLM lands found to contain wilderness characteristics; however, the rail route does not cross the existing Wilderness Study Area located in the northern portion of the Cedar Mountains.

Recreational uses of the land in Skull Valley are currently minimal but include such activities as driving off-road vehicles, bird watching, and hiking. Construction and operation of the proposed PFSF and rail line may create some delays or inconvenience to users wishing to access recreational resources in Skull Valley, particularly during periods when (1) access to these resources would be adversely affected by the movement of construction materials and workers on Skull Valley Road (i.e., during construction of the proposed PFSF) and (2) access to resources west of the proposed rail line would be affected (i.e., during rail line construction). Since access to recreational resources west of the proposed rail line is typically made by way of Skull Valley Road, these particular impacts would be additive. During the later phases of construction and during the operational period for the proposed PFSF, impacts to recreational resources and opportunities should be smaller (i.e., with less traffic along Skull Valley Road), although there may be some continuing difficulty in accessing resources west of the proposed rail line. Nevertheless, construction and operation of the proposed PFSF and rail line would result in small direct and indirect impacts to recreational resources and opportunities in Skull Valley.

Environmental Justice

Through the scoping process, affected members of the Skull Valley Band and neighboring Indian Tribes expressed their concerns with the project and identified how they perceived they might be affected by construction and operation of the proposed PFSF and Skunk Ridge rail line. These discussions elicited a concern that adverse impacts to the portion of the Reservation that would be used for the proposed PFSF, and nearby Tribal trust and BLM lands, could also affect the cultural values of the Skull Valley Band and other Native Americans. The potential impacts of concern

included disturbance, destruction, or limitations of services from ecological and biological resources; alteration of land forms; and noise or visual impacts to sacred sites. For each area of concern, impacts were reviewed to determine if there would be any potentially adverse impacts to the surrounding population or to the cultural values of the Skull Valley Band from SNF transport or from PFSF construction, normal operations, or accident conditions. If any potentially adverse impacts were identified, a determination was made as to whether minority or low-income populations would be disproportionately affected. Disproportionate impacts are defined as impacts that may affect minority or low-income populations at levels appreciably greater than the effects on non-minority or non-low-income populations. The Cooperating Agencies conclude that no disproportionately high and adverse impacts from the proposed action would occur to the Skull Valley Band or to minority and low-income populations living near the proposed rail routes.

MITIGATION MEASURES

The impact analyses contained in Chapters 4 and 5 of this FEIS have identified various mitigation measures PFS has either committed to or could take to reduce the environmental impacts associated with the proposed action. This section identifies the mitigation measures discussed in Chapters 4 and 5 that the staffs of the NRC, BIA, BLM, and STB propose be required and included, as appropriate, as part of each agency's record of decision.

Environmental Condition 1. Best Management Practices

In addition to the Best Management Practices for construction identified in Table 2.7 of this FEIS, PFS shall employ the following Best Management Practices for construction and operation of the proposed PFSF and related local transportation facilities.

A. Minimize land area disturbances by disturbing the smallest practicable area of land near the ephemeral streams along the proposed rail line corridor.

B. Establish staging areas for construction equipment in areas that are not environmentally sensitive to control erosion and spills.

C. Control temporary noise from construction equipment through the use of work-hour controls, and the operation and maintenance of muffler systems on machinery.

D. Ensure that construction and operational activities will not lead to contamination of groundwater, through a spill response procedure that provides for an appropriate response to a spill of oil or fuel at the PFSF or related transportation facilities.

Environmental Condition 2. Ecological Resources

A. PFS has consulted with the U.S. Fish and Wildlife Service regarding threatened or endangered species that might be present in the project area. Prior to initiating construction, PFS shall complete biological surveys in the locations identified below for the presence of sensitive species that may be found at those locations. Such surveys will be based on the most current lists of sensitive and/or threatened or endangered species maintained by appropriate government agencies. When the project construction schedule is determined, PFS shall consult with BIA, the

Skull Valley Band, and BLM regarding the appropriate timing of the surveys. PFS shall include the following species (and any additional ones, if identified as sensitive) in the biological surveys:

- Proposed PFSF site and the area within 0.8 km (0.5 mile) of the site
  - Loggerhead shrike
  - Burrowing owl
  - Skull Valley pocket gopher
  - Kit fox
  - Pohl's milkvetch
- Proposed rail line and the area within 30 m (100 ft) of rail line construction
  - Skull Valley pocket gopher
  - Kit fox
- Proposed rail line and the area within 0.8 km (0.5 mile) of the rail line corridor
  - Raptors (eagles, hawks, falcons, owls, loggerhead shrike)

B, If any of the surveys required in Condition 2.A identify the presence of a sensitive species, PFS shall immediately notify the appropriate Federal agency with management responsibility (BIA or BLM).

C, If PFS identifies any Federally listed threatened or endangered species within the proposed PFSF site area during construction, PFS shall immediately cease construction activities and notify BIA. If PFS identifies any Federally listed threatened or endangered species, or any State of Utah or BLM sensitive species during construction of the transportation facilities related to the proposed PFSF, PFS shall immediately cease construction activities and notify BLM.

D, If any Federally listed threatened or endangered species are taken by construction or operation of the proposed PFSF or its related transportation facilities, PFS shall immediately notify the U.S. FWS, BIA, the Skull Valley Band, or BLM, as appropriate.

E, If any State or BLM listed threatened or endangered species are taken by construction or operation of the transportation facilities related to the proposed PFSF, PFS shall immediately notify BLM and the Utah State Department of Natural Resources.

F, PFS shall complete any necessary biological assessment activities to support NRC, BIA or BLM's consultation requirements under the Endangered Species Act of 1973, and any BLM consultation agreements with the State of Utah.

G, Prior to initiating operations, PFS shall consult with NRC, BIA and the Skull Valley Band to develop an adequate wildlife monitoring program to be implemented during operation of the proposed PFSF.

H, Prior to initiating construction, PFS shall consult with BIA and BLM to develop an adequate plan for restoring and revegetating areas affected by construction of the proposed PFSF and related rail transportation facilities (includes greenstrip seed mix specifications).

I, Prior to initiating construction, PFS shall consult with BIA and BLM to develop an adequate plan for monitoring and controlling exotic and noxious weeds during construction and operation of the

proposed PFSF and related rail facilities. The plan must also include an approved list of herbicides.

J, Prior to initiating construction, PFS shall consult with BIA and BLM to develop an adequate plan for fire prevention, suppression, and rehabilitation during construction and operation of the proposed PFSF and related rail facilities.

K, Prior to construction of the rail line, PFS shall consult with BLM to determine the appropriate design, number, and locations for rail crossings to allow fire suppression equipment to cross the rail line.

L, PFS shall consult with BLM to develop an adequate plan to minimize impacts to livestock grazing activities during construction and operation of the rail facilities.

M, PFS shall ensure power poles and lines on the proposed PFSF are constructed to conform to the guidance in "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996," or more recent guidance as determined by BIA.

Environmental Condition 3. Cultural Resources

A. Before beginning construction of a rail line from Skunk Ridge to the Reservation, PFS shall implement all the mitigation measures required in the Agreement developed through the Section 106 consultation process (stipulations of the Agreement include Items B through G, below).

B. If PFS identifies any previously unrecorded artifacts or other cultural resources during construction activities on land under the jurisdiction of BLM, PFS shall immediately cease construction in the immediate vicinity of the discovery, inform BLM of the identified resources, and arrange for evaluation of the resources by a qualified individual to be retained by PFS.

C. If PFS identifies any previously unrecorded artifacts or other cultural resources during construction activities on the Reservation, PFS shall immediately cease construction in the immediate vicinity of the discovery, inform BIA and the Skull Valley Band of the identified resources, and arrange for evaluation of the resources by a qualified individual, to be retained by PFS, with the consent of the Band.

D. A qualified individual shall evaluate any resources identified during construction pursuant to Conditions 3.B and 3.C and shall recommend whether such resources are eligible for listing on the *National Register*.

E. If resources eligible for listing on the *National Register* are identified pursuant to Condition 3.D, PFS shall describe, in detail, their characteristics and take the appropriate mitigation measures determined through NHPA required consultation.

F. Upon providing a description of cultural resources required pursuant to Condition 3.E to BLM or upon a BLM determination that cultural resources identified during construction on lands under the jurisdiction of BLM are not eligible for listing on the *National Register*, PFS may resume construction on such lands.

G. Upon providing to BIA a description of cultural resources required pursuant to Condition 3.E above or upon a BIA determination that cultural resources identified during construction on the Reservation are not eligible for listing on the *National Register*, PFS may resume construction on the Reservation.

Environmental Condition 4. Air Quality

To control fugitive dust during construction, PFS shall implement a dust control program to minimize the off-site movement of fugitive dust. The program shall include measures to minimize dust emissions from construction and earthmoving activities (for both the proposed PFSF site and the new transportation facilities), the concrete batching facility, material transfer points and stockpiles, and temporary or permanent flood protection berms.

Environmental Condition 5. Water Resources

A. PFS shall design all culverts and crossings of intermittent streams along the rail line to minimize the potential for ponding, erosion, and sedimentation by matching the existing topography.

B. Prior to initiating construction, PFS shall develop a monitoring program to allow a determination as to whether the wells nearest the proposed PFSF are adversely impacted from groundwater withdrawal associated with the construction and operation of the proposed PFSF.

C. PFS shall be responsible for clean-up of any spills or accidents at the proposed PFSF, as well as at the rail siding and along the right-of-way for the rail line. In the event of any such spills or accidents, all clean-up activities shall conform with the clean-up standards set forth in 10 CFR Part 20, 40 CFR 112.7, and applicable State of Utah or EPA requirements.

D. PFS shall develop a maintenance plan to ensure all culverts are clear of debris to avoid potential flooding and stream flow alteration.

Environmental Condition 6. Traffic

If PFS determines that continual use of the unimproved roads adjacent to the proposed rail line is necessary to transport either workers or materials, PFS shall consult with BLM to develop an adequate plan to minimize any degradation of the roads. BLM shall be contacted prior to any use of the unimproved roads that could lead to their degradation.

Environmental Condition 7. Construction Training

Prior to initiating construction, PFS shall identify and train on-site personnel responsible for ensuring that construction activities do not disturb sensitive ecological and cultural resources. PFS shall further ensure that all on-site construction workers are trained on potential sensitive ecological and cultural resources that could occur at the construction sites. This training shall be conducted in coordination with appropriate ecological and cultural resource personnel.

Environmental Condition 8. Monitoring and Reporting

A. PFS shall provide quarterly reports on compliance with the required construction-related mitigation conditions to the NRC, BLM, BIA, the Skull Valley Band, and STB.

B. PFS shall certify compliance with all construction mitigation conditions to NRC, BLM, BIA, the Skull Valley Band, and STB (1) at the completion of the rail facility construction and before initiating rail operations and (2) at the completion of the site and access road construction and before initiating operations of the PFSF.

Summary of the Costs and Benefits of the Proposed Action

Economic costs and benefits

The computation of the economic benefit for the proposed action has two parts: (1) the costs of storing SNF at existing reactor sites that can be avoided due to the availability of the additional storage capacity at the proposed PFSF, and (2) the costs of constructing and operating the proposed PFSF. The net economic benefit of the proposed action is the mathematical difference between these two costs. A positive value indicates that the costs associated with the proposed PFSF are less than the costs associated with at-reactor storage (i.e., the no-action alternative).

From an economic perspective, the net economic benefit of the proposed PFSF is directly proportional to the quantity of SNF shipped to the facility. The scenarios evaluated by the staff indicate the potential for a net positive benefit past the break-even throughput[1] volume of SNF. As the SNF throughput decreases, the economic benefit decreases. The net economic benefits of the proposed PFSF are sensitive to several factors that are precisely or are inherently uncertain. An analysis of the sensitivity of the potential net economic benefits to critical cost assumptions indicates the possibility of considerable variation in outcome. Notwithstanding the sensitivity of the benefits to these factors, cases in which the proposed PFSF has a capacity[2] of 10,000 MTU and a throughput of at least 15,500 MTU have a greater likelihood of positive net benefits.

Environmental benefits and costs of the proposed action

The socioeconomic environment of the Reservation would be improved by the proposed action. The Skull Valley Band would benefit from funds generated from the lease of their land and from employment opportunities associated with construction and operation of the proposed PFSF. The Skull Valley Band has indicated in several documents and interviews that the revenue generated by the proposed PFSF would afford the Skull Valley Band expanded opportunities for local social, educational and economic development. The State of Utah would benefit economically from increased tax payments resulting from the sale of goods and services associated with the PFSF. Tooele County and other parts of Utah would also benefit economically from the monies spent buying and manufacturing items for use at the proposed PFSF.

[1] "Throughput" is the amount of SNF that would be stored over the life of the proposed PFSF.

[2] "Capacity" is the amount of SNF that could be stored at the proposed PFSF at any one time.

If the proposed PFSF is not licensed, cessation of the power generating activities before operating license expiration could result at one or more nuclear power plants unless alternative storage capacity is developed. Early shutdown of these reactors would lead to the reduced availability of electric power or the need to obtain replacement power from other sources.

The environmental costs of the proposed action are related to the impacts summarized in Table ES.1 and discussed above. The most important of these environmental costs are associated with the commitment of public and Tribal land in Skull Valley for the proposed PFSF and the new rail line. This land would be lost for other uses until such time as the PFSF and rail line are decommissioned.

Additional environmental costs would be associated with the increased use of Skull Valley Road by construction workers and operations workers at the proposed PFSF. Increased road use would add to existing traffic and would produce vehicle noise audible at some residences.

The existing scenic qualities of Skull Valley would be changed by the presence of an industrial facility (i.e., the proposed PFSF) and the new rail line. Impacts to these scenic qualities could not be mitigated completely until the facility and rail line were eventually decommissioned and removed.

The proposed action would expose members of the public along transportation routes and the residents of Skull Valley to a very small, incremental amount of radiation in addition to the average doses already received by members of the U.S. population from other sources of radiation.

Other benefits and costs of the proposed action

Construction of the proposed rail line to the proposed PFSF would enhance the transportation infrastructure in Skull Valley. The proposed improvements to the transportation infrastructure could make economic development of the central and southern parts of the valley more attractive. Similarly, enhancements to electric and telephone service induced by the proposed PFSF could enhance the attractiveness of the valley for other development or economic activities.

Before a nuclear plant site at which reactor operation permanently ceased could become entirely available for other uses, the facility would need to be completely decommissioned (i.e., all radioactive materials would have to be removed to levels acceptable for unrestricted release of the site). As long as SNF remains in storage at the reactor, full-site decommissioning cannot be completed. The existence of the proposed PFSF could allow licensees of shutdown reactors to complete decommissioning sooner, resulting in a cost savings to the reactor licensees and allowing earlier use of the reactor sites for other purposes.

COMPARISON OF THE POTENTIAL ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

The Proposed Site (Site A) Versus the Alternative Site (Site B) in Skull Valley

Site A is part of Alternatives 1 and 3, and Site B is considered in Alternatives 2 and 4. There are three notable differences between Sites A and B on the Reservation: (1) Site B lies farther from existing rail services; hence, about 10 ha (24 acres) more land would be needed for construction of a new rail line

in Skull Valley, (2) Site B lies slightly closer to the location of the resident nearest to the proposed PFSF, and (3) Site B is located closer to known populations of the rare Pohl's milkvetch (a plant species). The potential for impact to this species from trampling or damage from construction vehicles would be slightly greater if the PFSF were constructed at Site B than at Site A. Each of these differences would give rise to greater impacts at Site B than at Site A. Nevertheless, the respective impacts of the use of Site A and Site B are considered to be largely indistinguishable.

The ITF Transportation Option

The construction of the ITF is considered in Alternatives 3 and 4 and the proposed rail is considered in Alternative 1 and 2. Construction of an ITF near Timpie would involve 4.5 ha (11 acres) of previously disturbed land that lies between the existing Union Pacific Railroad and Interstate 80. The ITF would include three new rail sidings, a new access road for heavy-haul vehicles, and a building with a crane for transferring SNF shipping casks from railcars onto heavy-haul trailers. The impacts from constructing these facilities would be small.

Under the ITF alternative, PFS would use multi-axle heavy-haul vehicles that would distribute the vehicle's load over a large surface area. Special permits would be required from the state of Utah because of the size and weight of these heavy-haul vehicles; however, PFS has indicated that the existing Skull Valley Road is capable of handling the proposed heavy-haul vehicles without any road improvements or upgrades. There is, however, the potential for increased wear and maintenance requirements on Skull Valley Road due to heavy truck traffic.

The use of heavy-haul vehicles moving SNF would produce only a small increase in the daily use of Skull Valley Road (about four round trips per week); however, the temporary impacts to other traffic from these large, slow-moving heavy-haul vehicles might be difficult to mitigate.

Workers at the ITF would receive additional radiological doses (i.e., doses beyond what would accrue from the use of the proposed rail line from Skunk Ridge) during the transfer of SNF shipping casks from rail cars onto heavy-haul trailers. PFS currently proposes to use the same workers that handle SNF at the proposed PFSF to transfer SNF from railcars to heavy haul vehicles at the ITF. Based on current projections (i.e., number of workers and dose estimates for work activities), the doses received by these workers could exceed the 5 rem occupational exposure limit in 10 CFR Part 20. PFS would be required to ensure that the occupational exposure limit is not exceeded; therefore, PFS would be required to take additional measures to reduce individual doses to acceptable levels. Although these doses would be administratively controlled to comply with NRC regulatory limits, the lower doses associated with the Skunk Ridge rail line would be preferable to those resulting from the ITF alternative.

The Wyoming Alternate Site

Table ES.2 includes a comparison of the potential impacts of constructing and operating an SNF storage facility (and its associated transportation facilities) in Wyoming with the impacts of such a facility in Skull Valley, Utah. The NRC has no authority to decide the location of the proposed PFSF; NRC's decision is either to grant or deny PFS's application for a license for the Skull Valley location. The Wyoming site is evaluated in this FEIS for the purpose of comparing potential impacts of that site to those of the proposed PFSF in Skull Valley. Because a detailed design for an ISFSI in Wyoming does not exist, and because the Wyoming site has not been studied in as great detail as the Skull

Valley site, a precise comparison of potential impacts is not possible for each resource category. The conclusions regarding the evaluation of the Skull Valley site versus the Wyoming site are therefore made from the perspective of determining whether the construction and operation of the proposed PFSF at the Wyoming site is obviously superior to construction and operation of the proposed PFSF at the Skull Valley site.

With two exceptions, the potential impacts for an SNF storage facility at the site in Fremont County, Wyoming, would be similar to those for the proposed PFSF in Skull Valley. The exceptions include impacts associated with the local transportation options and impacts to the Skull Valley Band. Each of these exceptions is discussed below.

The Wyoming site would cause fewer impacts than the Skull Valley site in regard to land use, disturbance of wildlife habitat, and the required amounts of construction materials related to the construction of a new rail access corridor. Because of the greater distance from existing rail service in Skull Valley, significantly larger amounts of land, which is public land administered by the BLM, would be needed for a new rail transportation corridor in Skull Valley than for the Wyoming alternative (which lies entirely on privately-owned land). The Wyoming site would require only about 1.6 km (1 mile) of new rail line, compared to 51 km (32 miles) in Skull Valley. Thus, a considerably larger amount of habitat associated with the rail line would be disturbed in Skull Valley than would be disturbed near the Wyoming site. The other impacts of constructing a new rail line in Skull Valley would also be absent for an SNF storage facility at the Wyoming site. These impacts include the use of railbed ballast and aggregate, as well as the increased road use of vehicles transporting these construction materials and impacts to cultural resources along the proposed rail corridor in Skull Valley.

If the proposed PFSF were not constructed on the Reservation, then its positive economic benefits would not accrue to the Skull Valley Band. The Skull Valley Band would be free to pursue other uses for its land, but would lose opportunities for employment, as well as the financial gain from the proposed lease revenue.

In regard to all other potentially affected resources, the Skull Valley site does not appear to be appreciably different from the Wyoming site. While the impacts of building the rail line in Skull Valley are greater than those for the rail construction at the Wyoming site, these impacts would not be large, when considering mitigation measures proposed to be required by the Cooperating Agencies as set forth above in the section on mitigation measures. In addition, the location of the ISFSI in Wyoming would not produce the positive socioeconomic effects for the Skull Valley Band. Accordingly, the NRC staff concludes that the Wyoming site does not appear to be substantially environmentally preferable and obviously superior to the proposed site (i.e., Site A) in Skull Valley.

The No-Action Alternative

The no-action alternative would be to not build the proposed PFSF. Under the no-action alternative,

1. NRC would deny the application for a license for the proposed PFSF;
2. BIA would not approve the lease between PFS and the Skull Valley Band, and the Skull Valley Band would be free to pursue alternative uses for the land in the northwest corner of the Reservation;

3. No right-of-way approvals would be granted by BLM, and no amendments would be required for existing BLM Land Use Plans. The public lands administered by BLM at the proposed ITF location near Timpie, as well as at the proposed Skunk Ridge rail siding location and along the proposed Skunk Ridge rail corridor would be available for other uses compatible with existing land use plans; and
4. STB would deny the application for a license for the proposed rail line.

Under the no-action alternative, reactor licensees would continue to store SNF at their reactor sites either in spent fuel pools or dry casks. The potential impacts of constructing and operating the proposed PFSF, and associated SNF transportation facilities, in Skull Valley would not occur under this alternative. Although the no-action alternative would avoid the impacts to Skull Valley (see Table ES-2), it could lead to impacts at other locations. The two most likely no-action scenarios involve the continued accumulation of SNF in existing at-reactor storage facilities and the construction of new or expanded at-reactor SNF storage facilities. In either scenario, SNF would continue to be stored at reactor sites until it is shipped to the DOE permanent geological repository.

If no additional SNF storage capacity is constructed, SNF would continue to accumulate at nuclear power plants where it is being generated. Most SNF is currently being stored in spent fuel pools that were built into reactor facilities. Some power reactor licensees have expanded the capacity of their pool storage to accommodate the accumulated SNF. Some have built at-reactor ISFSIs to store their SNF in dry casks using a technology similar to what is proposed for Skull Valley. It is also possible that some power reactor licensees, however, because of other constraints (e.g., insufficient land, state laws) may not be able to or may not choose to expand on-site storage and might have to terminate operations before the expiration of their reactor licenses if their available spent fuel storage capacity is filled.

The NRC has examined, in support of other agency actions, the environmental impacts of at-reactor ISFSIs. In support of its Waste Confidence Decision (which states that at least one mined geological repository will be available by the end of 2025), the NRC has examined the environmental impacts of the operation of ISFSIs built at operating nuclear power plant sites. The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored without significant environmental impacts for at least 30 years beyond the licensed life for operation of a reactor at on-site or off-site ISFSIs (10 CFR 51.23; 49 *Fed. Reg.* 34688, Aug. 31, 1984). The NRC has reviewed the Waste Confidence decision twice since it was first issued [in 1990 (*55 Fed. Reg.* 38474, Sept. 18, 1990) and in 1999, (64 *Fed. Reg.* 68005, Dec. 6, 1999)], and in both cases, the Commission basically reaffirmed the findings of the original decision. On July 18, 1990, the NRC published a final rule on “Storage of Spent Nuclear Fuel in NRC-Approved Storage Casks at Nuclear Power Reactor Sites” (55 *Fed. Reg.* 29181–29190, July 18, 1990), and issued a general license for storage of SNF at reactor sites (10 CFR 72.210). The environmental impacts of SNF storage at reactor sites were also addressed in an environmental assessment and its accompanying “finding of no significant impact” (NRC 1989). The finding of no significant impact states that:

> [T]he Commission concludes that this proposed rulemaking, entitled “Storage of Spent Nuclear Fuel in NRC-Approved Storage Casks at Nuclear Power Reactor Sites” will not have a significant incremental effect on the quality of the human environment.

To date, the NRC has issued eleven site-specific licenses for at-reactor ISFSIs located in various parts of the country. For all eleven ISFSIs, an environmental assessment was completed and a finding of no significant impact was reached. For the no action alternative with respect to the proposed PFSF, the staff assumes that at-reactor ISFSIs would be constructed at reactor sites where additional storage capacity is needed and where physical constraints, such as available land at the reactor site, do not preclude the construction or operation of an ISFSI. The staff also assumes that the design, construction, and operation of future ISFSIs would be similar to that of existing ISFSIs. Although a detailed examination of each reactor site where an at-reactor ISFSI could be built has not been completed, the staff does not expect, based on the previous NRC studies discussed above, that the construction and operation of future at-reactor ISFSIs would result in significant environmental impacts.

If at-reactor ISFSIs are constructed, the positive economic benefits from tax revenues, local payroll, and other expenditures would not be available to the Skull Valley Band, but the Skull Valley Band would be free to pursue other uses for its land. However, in aggregate there could be at least equivalent economic benefits from tax revenues, local payroll, and other expenditures to at-reactor communities. These benefits would stem from expenditures related to at-reactor IFSFIs and/or continued SNF storage in reactor pools.

Section 6.7 of this EIS describes the environmental effects of the no-action alternative and compares them to the proposed action. Table 9.1 summarizes that comparison in tabular form. In sum, all environmental effects of the no-action alternative would be small to moderate. Like the no-action alternative, the impacts of the proposed action would also be small for most resources. However, as discussed in the following paragraphs, in comparison to the no-action alternative the proposed action would have small to moderate adverse impacts on flooding, air quality (during construction of the rail line), transportation (on Skull Valley road during construction), land use (associated with the rail line), cultural resources (along the rail line), and the scenic qualities of Skull Valley. On the other hand, the no-action alternative would not provide the small to moderate benefits to the economic structure of Skull Valley, Tooele County or northern Utah, including benefits to the Skull Valley Band, that would occur under the proposed action.

The following types of impacts would be avoided by the no-action alternative. During construction of the PFSF or during the life of the rail line, severe flooding conditions in Skull Valley could cause erosion of disturbed soils and unvegetated embankments. Construction of the rail line in the vicinity of Interstate 80 could cause dispersal of fugitive dust that could affect people traveling on the interstate. During construction of the proposed PFSF, congestion on Skull Valley Road could cause delays for others who use the road. While the land use effects of the proposed PFSF would be small, the rail line could have moderate effects for those who use the affected area for livestock grazing. Construction of the rail line would affect eight historic properties that are eligible for inclusion on the National Register. Construction and operation of the PFSF would change the scenic quality of the valley by introducing an industrial presence into a largely undeveloped landscape.

While the no-action alternative would have no impact on the economic structure of Skull Valley or Tooele County, the proposed action would have small to moderate beneficial effects. The facility and the rail line would employ about 255 people during the peak of construction. Band members would benefit from lease payments for use of the land on which the PFSF would be built. Local businesses, primarily in Tooele County, would benefit from selling the supplies purchased by the PFSF and its

employees. In addition, Tooele County would benefit from payments from PFS and from taxes paid by PFS employees who live there.

Recommendation of the Preferred Alternative

The environmental review staffs of the NRC, BIA, BLM, and STB have concluded that (1) measures required by Federal and State permitting authorities other than the Cooperating Agencies, and (2) mitigation measures that are proposed in this FEIS to be required would eliminate or ameliorate any potential adverse environmental impacts associated with the proposed action specified by PFS in its NRC license application, BLM right-of-way application(s), and STB rail line application. In addition, upon completion of the project and before termination of the NRC license and the BIA lease, the closure and decommissioning of the facility would make the project area available for other uses by the Skull Valley Band.

The NRC staff and the Cooperating Agencies have concluded that the overall benefits of the proposed PFSF outweigh the disadvantages and costs, based upon consideration of

- the need for an alternative to at-reactor SNF storage that provides a consolidated, and for some reactor licensees, economical storage capacity for SNF from U.S. power generating reactors;
- the minimal radiological impacts and risks from transporting, transferring, and storing the proposed quantities of SNF canisters and casks;
- the economic benefits that would accrue to the Skull Valley Band during the life of the project; and
- the absence of significant conflicts with existing resource management plans or land use plans within Skull Valley.

Furthermore, the construction and use of a new rail line from Skunk Ridge to the proposed PFSF would have advantages over the use of a new ITF near Timpie in combination with Skull Valley Road to transport SNF to the PFSF. The impacts to local traffic on Skull Valley Road due to the presence of slow moving heavy-haul vehicles would be difficult to mitigate, but would be avoided by the new rail line from Skunk Ridge. Also, additional doses would be incurred by workers transferring SNF shipping casks from railcars to heavy-haul vehicles at the ITF, which would be avoided if the Skunk Ridge rail option were used instead of the ITF option.

The preferred alternative of the NRC staff is the proposed action, which includes NRC's issuing a license to PFS to receive, transfer, and possess SNF at a location in the northwest corner (i.e., at Site A) of the Reservation, BLM's approving the right-of-way and land use plan amendment for the use of public lands administered by the BLM for a new rail line, and STB's licensing the construction and operation of a new rail line to be routed along the western side of Skull Valley and connected with the existing Union Pacific Railroad at a new siding near Skunk Ridge, Utah.

If the NRC approves the license and BIA approves the lease, BLM's preferred alternative is the proposed action. However, prior to BLM issuing a ROD, there must be resolution of a planning restriction imposed by Section 2815 of the National Defense Authorization Act for Fiscal Year 2000. After this, BLM would issue its ROD, complete its plan amendment process for the Pony Express Resource Management Plan, and then issue a right-of-way for the Skunk Ridge rail siding and rail

line. Absent such actions by the NRC and BIA, BLM would not grant either of PFS's right-of-way requests.

Based on the information and analysis performed, the STB environmental review staff's conclusion is that the proposed project, with implementation of the mitigation measures proposed in this FEIS, would not result in significant adverse impacts to the environment; therefore, its preferred alternative would be to recommend approval of the construction and operation of the proposed rail line.

The BIA did not express a preference for any particular alternative in the DEIS, pending its consideration of environmental impacts and mitigation measures identified in the FEIS and public comments on the DEIS. Based on its consideration of the impacts and mitigation measures identified in this FEIS and its trust responsibility to the Skull Valley Band, the BIA preferred alternative is the proposed action. The proposed action, based on the analysis in this FEIS, would have no significant adverse impacts but would have significant economic benefits for the Skull Valley Band. In addition, Site A (the site named in the proposed lease) is the BIA's preferred site, based on this FEIS, rather than Site B. Even though impacts at both Sites A and B would be insignificant, Site A is slightly further away from both residential areas on the Reservation and habitat for the rare Pohl's milkvetch.

Table ES.2. Summary and comparison of potential environmental impacts

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Geology, Minerals, and Soil					
SMALL. Impacts to soils and economic geologic resources could occur from construction and operation of the proposed PFSF and the rail line. A small percentage of the soils in the valley would be permanently lost in the soil/cement mixture. Excess soils would not be generated. Aggregate materials used for construction are readily available locally and would be recoverable in decommissioning. Underlying mineral resources would be unavailable during operation.	The impacts for this alternative are considered similar to those identified for the proposed action.	Less aggregate would be required for construction of the ITF than the new rail line. These materials are readily available locally and would be recoverable on decommissioning.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Like the preferred site (Site A) impacts to soils and economic geologic resources will occur. Because a much shorter rail line is required, soils disturbance and geologic resource commitments would be less than at the preferred site. Impacts from the unavailability of mineral resources beneath the site is the same as for the preferred site.	Construction or expansion of at-reactor storage facilities would involve negligible commitments of land that is already under the control of the owner of the associated nuclear power plant.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Surface Water					
SMALL. Some modification of surface drainage patterns could occur; however, there would be no adverse effects during normal weather conditions.	The impacts for this alternative are considered similar to those identified for the proposed action.	Little modification of the existing surface drainage system would be required at the ITF. Surface water impacts would be less than for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	There would be less interaction of the site footprint and access routes with surface runoff channels at the Wyoming site as compared to the Skull Valley site.	Construction or expansion of at-reactor SNF storage facilities would occur on sites previously disturbed by the construction of the nuclear power station; hence, no impacts to water resources would be expected.
Flooding					
SMALL TO MODERATE. Severe flooding conditions, if they occur during construction of the proposed PFSF, could cause erosion of disturbed soil and unvegetated embankments and would create downstream siltation. Potential impacts to the rail line under severe flooding events would be similar to those described above for the proposed PFSF.	The impacts for this alternative are considered similar to those identified for the proposed action.	No flooding potential exists at the ITF site. Less possibility of flood-related effects on transportation facilities if the ITF is constructed instead of the rail line.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Potentially smaller impacts from watershed-scale flooding than at the Skull Valley site.	Site-specific SERs address flooding concerns. Expanded storage or new storage facilities would be subjected to NRC safety reviews and regulations.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Water Use					
SMALL. Most water required for construction would be purchased from commercial suppliers. On-site groundwater use would involve small quantities during operation.	The impacts for this alternative are considered similar to those identified for the proposed action.	Avoidance of rail line construction would reduce water use by more than 13,000 m^3 (50 million gallons).	The impacts for this alternative are considered similar to those identified for Alternative 3.	Less water would be required for construction at the Wyoming site because of a much shorter rail access corridor than in Skull Valley.	Water requirements for reactor cooling and SNF pool storage operations would continue. Additional water requirements for the expansion or construction of new storage facilities are expected to be small.
Groundwater					
SMALL. Little to no potential for impacts to other groundwater users or to groundwater quality.	The impacts for this alternative are considered similar to those identified for the proposed action.	Impacts would be similar to those of the proposed action except that effects of accidental spills along rail line construction corridor would be eliminated.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Residential wells are known to exist within 1 mile of the Wyoming site. Groundwater quantity may be affected.	Construction or expansion of at-reactor SNF storage facilities would occur on sites previously disturbed by the construction of the nuclear power station; hence, no impacts to water resources would be expected.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Air Quality					
SMALL TO MODERATE. Large amounts of fugitive dust from earth disturbance would occur during construction of the proposed PFSF, and of the rail line where it runs close to Interstate 80. Air quality impacts would be small for the proposed PFSF, and moderate (similar to a large road construction project) for the rail line construction near Interstate 80, where small effects might be experienced by large numbers of people. Air quality impacts during operation from up to two locomotives, vehicles, and a backup generator would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The air quality impacts for the proposed PFSF would be the same as the proposed action; however, the ITF precludes the need to construct a rail line to the storage site. Air quality impacts of constructing a rail line near Interstate 80 would be eliminated. Air quality impacts of constructing an ITF would be less than for a rail line due to the much smaller area that would be disturbed.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Impacts at the Wyoming site are likely to be greater than any at either of the Skull Valley sites due to the proximity of construction areas to the nearest residence and a population center.	Some local air-quality impacts would be likely near existing nuclear stations if at-reactor facilities need to be expanded; however, these impacts are expected to be small.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Terrestrial Ecology					
Vegetation. SMALL. Clearing of approximately 408 ha (1,008 acres) of land for construction of the proposed PFSF and associated rail line would result in loss of existing degraded desert shrub/saltbush vegetation dominated by non-native cheatgrass. About 71 percent of this area would be replanted with native species or crested wheatgrass.	The impacts to vegetation at Site B would be similar to those for Site A. An additional 10 ha (24 acres) of existing vegetation would be lost by construction of the rail corridor. This additional loss would not affect any unique or sensitive plants or plant communities.	The impacts to vegetation at Site A would be similar to those for the proposed action. The construction of the ITF at Timpie would result in clearing only 4.5 ha (11 acres) of disturbed vegetation. The total area cleared, 98.5 ha (243 acres), would be much less than for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to vegetation for a facility in Wyoming would be similar to those for a facility in Skull Valley. The amount of vegetation disturbed by clearing would be considerably less than for the proposed action because the rail line would be shorter.	Site-specific disturbance of existing plant communities may occur. Where storage could be expanded only within existing facilities, impacts to vegetation would be expected to be small. If new SNF storage facilities are constructed in the vicinity of existing reactor structures and minimal land disturbance is required, impacts on vegetation would be minimal.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Wildlife. SMALL. Construction of the proposed PFSF and rail line would disturb 408 ha (1,008 acres) of wildlife habitat, but 71 percent of this area would be re-planted to native species and crested wheatgrass which may provide improved habitat for some species. Fences around the proposed PFSF would be expected to alter movement patterns of larger animals, but such impacts should be small if BLM-recommended mitigation measures to provide crossings of the rail line are implemented. Operation of the proposed PFSF could result in radiation exposure to some species that might be in close proximity to the casks (e.g., birds and small animals); these exposures, however, would be below stated criteria.	The impacts to wildlife at Site B would be similar to those for Site A. An additional 10 ha (24 acres) of existing wildlife habitat would be lost by construction of the rail corridor. This additional loss would not affect any unique or sensitive habitat.	The impacts to wildlife at Site A would be similar to those for the proposed action. The construction of the ITF near Timpie would result in loss of only 4.5 ha (11 acres) of disturbed habitat. The impacts of the rail corridor on wildlife movement and habitat would not occur.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to wildlife for a facility in Wyoming would be similar to those for a facility in Skull Valley without an ITF. Wildlife species that are present on the Wyoming site are similar to those at Skull Valley and would be affected in similar ways. Considerably less wildlife habitat would be affected because of the shorter rail access corridor.	Site-specific disturbance of existing wildlife habitats may occur. Where storage could be expanded only within existing facilities, impacts to wildlife habitats are expected to be small. If new SNF storage facilities are constructed in the vicinity of existing reactor structures and minimal land disturbance is required, impacts on wildlife would be minimal.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Wetlands. SMALL. No impacts to wetlands from construction of the proposed PFSF are anticipated because there are no wetlands on or near the preferred site or in the vicinity of the rail line and siding. A potential small impact to wetlands around Horseshoe Springs could result from increased recreational use by temporary construction workers.	The impacts to wetlands would be similar to those of the proposed action because no wetlands are present in areas affected by the project.	The impacts to wetlands would be similar to those of the proposed action because no wetlands are present in areas affected by the project.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to wetlands for a facility in Wyoming would be similar to those for a facility in Skull Valley. One wetland is known to occur on the Wyoming site, but it could be avoided if the project were to be located there.	Site-specific disturbance of existing wetlands may occur. Where storage could be expanded only within existing facilities, impacts to wetlands are expected to be small. If new SNF storage facilities are constructed in the vicinity of existing reactor structures and minimal land disturbance is required, impacts on wetlands would be minimal.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Perennial and Ephemeral Streams. SMALL. No impacts to streams are expected to occur on the proposed PFSF site because there are no streams present. Because the proposed rail corridor would cross 32 streams with ephemeral flows, it is possible, depending on the time of year that construction occurs, that disturbed soils could create small short-term increases in the turbidity of any water in such streams. Such impacts are expected to be small.	The impacts to perennial and ephemeral streams would be similar to those of the proposed action because no additional streams are present on Site B or the additional area needed for the rail corridor.	The impacts to perennial and ephemeral streams would be much less than under the proposed action because there would be no crossings of the 32 ephemeral streams along the rail corridor. No streams would be affected by construction and operation of the ITF near Timpie.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to perennial and ephemeral streams for a facility in Wyoming would be similar to those for a facility in Skull Valley. Two ephemeral streams occur near the Wyoming site and two or three dry washes are within 1.6 km (1 mile) of the site.	Site-specific disturbance of existing streams may occur. Where storage could be expanded only within existing facilities, impacts to streams are expected to be small. If new SNF storage facilities are constructed in the vicinity of existing reactor structures and minimal land disturbance is required, impacts on perennial or ephemeral streams would be minimal.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Threatened, Endangered, and Species of Special Concern. SMALL. No Federally or State-listed threatened or endangered plant species are known to occur on the proposed PFSF site or rail line. Federally and State-listed raptors (e.g., ferruginous hawk) and the BLM-listed loggerhead shrike are potentially present in Skull Valley. The rare Pohl's milkvetch, a BLM special status plant species, is potentially present near the site. Habitat for the BLM-listed kit fox and burrowing owl is present along the Skunk Ridge rail line and on the proposed PFSF site.	The impacts to threatened and endangered species and State species of concern for a facility located at Site B would be similar to those for a facility at Site A, although an additional 10 ha (24 acres) of potential habitat for such species would be disturbed.	The impacts to threatened and endangered species and State species of concern would be similar to those of the proposed action, except that less habitat for species potentially present in the area would be disturbed.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to threatened and endangered species and State species of concern for a facility in Wyoming would be similar to those for a facility in Skull Valley. Owl Creek miner's candle, a plant species which has a declining population occurs in the general area of the site, and the ferruginous hawk, a State-listed species in Wyoming, is reported to use the site.	Site-specific disturbance of existing plant and/or wildlife habitats may occur. Where storage could be expanded only within existing facilities, impacts to threatened or endangered species are expected to be small. If new SNF storage facilities are constructed in the vicinity of existing reactor structures and minimal land disturbance is required, impacts on threatened or endangered species would be minimal.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
No impacts would occur to federally-listed threatened or endangered species. Impacts to state-listed species and other species of special concern would be small.					
Socioeconomics and Community Resources					
Population. SMALL. The total increase in population amounts to approximately 0.6 percent of Tooele County's 1996 population during construction and less than that during operations. Because only Skull Valley Band members and their spouses may live on the Skull Valley Reservation, impacts on Reservation population would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The total increase in population amounts to approximately 0.4 percent of Tooele County's 1996 population. This is approximately two-thirds of the population increase associated with construction activities for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to population of constructing and operating a facility at the Wyoming site are expected to be quantitatively similar to those at the remote Skull Valley site. Unlike Skull Valley, the Wyoming site is located on private land. Its development is expected to have no special impact on either the population or infrastructure of the Wind River Indian Reservation.	The potential effects on population would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored. In addition, the State of Utah and Tooele County would not receive tax and other economic benefits associated with Options 1-4.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Housing. SMALL. The total increase in housing requirements amounts to approximately 26 percent of vacant housing units for sale or rent in 1990 for Tooele County during construction and approximately one-half that proportion during operations. Because only Skull Valley Band members and their spouses may live on the Skull Valley Reservation, impacts on Reservation housing would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The increase in housing requirements would be less for this alternative (i.e., approximately 17.2 percent of vacant housing units) than the proposed action because fewer workers would be needed during construction.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to housing of constructing and operating a facility at the Wyoming site are expected to be quantitatively similar to those at the remote Skull Valley site. Unlike Skull Valley, the Wyoming site is located on private land. Its development is expected to have no special impact on either the population or infrastructure of the Wind River Indian Reservation.	The potential effects on housing would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Education. SMALL. The total increase in school-age children amounts to approximately 0.5 percent of the enrollment in 1997 for Tooele County during construction and somewhat less than that during operations. Because only Skull Valley Band members and their spouses may live on the Skull Valley Reservation, impacts on Reservation education would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The increase in school-age children would be less for this alternative (i.e., approximately 0.3 percent of existing enrollment) than the proposed action because fewer workers would be needed during construction.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to education of constructing and operating a facility at the Wyoming site are expected to be quantitatively similar to those at the remote Skull Valley site. Unlike Skull Valley, the Wyoming site is located on private land. Its development is expected to have no special impact on either the population or infrastructure of the Wind River Indian Reservation.	The potential effects on education would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Utilities. SMALL There may be some improvement to electrical service if upgrades are required for the proposed PFSF. The small number of in-moving workers would likely live in existing housing during construction and operations that would not require additional utility hookups. Because only Skull Valley Band members and their spouses may live on the Skull Valley Reservation, impacts on Reservation utilities would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to utilities of constructing and operating a facility at the Wyoming site are expected to be similar to those at the remote Skull Valley site. Unlike Skull Valley, the Wyoming site is located on private land. Its development is expected to have no special impact on either the population or infrastructure of the Wind River Indian Reservation.	The potential effects on utilities would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Solid and Sanitary Waste. SMALL. The actual quantities of solid wastes expected to be generated are small during both construction and operation of the proposed PFSF and would be shipped to licensed landfills or to permitted low-level waste facilities, as appropriate. Spoils resulting from construction of the proposed PFSF and the proposed rail line would be reapplied for grading purposes, and vegetative wastes along the proposed rail line would be shredded and scattered in place. Because only Skull Valley Band members and their spouses may live on the Skull Valley Reservation, impacts on Reservation solid and sanitary waste would be small.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to solid wastes of constructing and operating a facility at the Wyoming site are expected to be similar to those at the remote Skull Valley site. Unlike Skull Valley, the Wyoming site is located on private land. Its development is expected to have no special impact on either the population or infrastructure of the Wind River Indian Reservation.	The potential effects on solid wastes would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Transportation and Traffic. SMALL TO MODERATE. The period of greatest traffic impact would occur during the first 6–8 weeks of constructing the proposed PFSF, with a 130-percent temporary increase in the use of Skull Valley Road for the movement of construction materials and workers resulting in delays along it. Impacts resulting from construction of the proposed rail siding and rail line would be minimal (accounting for only a 4.5-percent increase in traffic along Interstate 80) and would be spatially separate from impacts along Skull Valley Road. Impacts during operation of the proposed PFSF and use of the rail line for the movement of SNF would be substantially less than during construction.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts would generally be of similar magnitude and significance as those for the proposed action. The contribution to adverse transportation impacts resulting from construction of the ITF would be minimal (accounting for only a 1.2 percent increase in traffic along Interstate 80), in addition to traffic delays during construction of the proposed PFSF (identical to those for the proposed action). There would be some additional delays along Skull Valley Road during the operation of the proposed PFSF particularly related to movement of 2–4 SNF shipments per week to the proposed facility. There is the potential for increased wear and maintenance requirements on Skull Valley Road due to heavy truck traffic.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area. The impacts to transportation of constructing and operating a facility at the Wyoming site are expected to be less than those at the remote Skull Valley site because of the Wyoming site's closer proximity to the railroad mainline.	The potential effects on transportation would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Economic Structure. SMALL TO MODERATE (but beneficial). Constructing the proposed PFSF and the proposed rail line would directly result in the creation of approximately 255 jobs during the peak of construction and approximately 45 jobs during operation. Construction and operation of the proposed PFSF would result in increased business for the Pony Express Convenience Store on the Reservation and for other businesses and suppliers in the area. There should be a large benefit to the Skull Valley Band in the form of lease payments for the duration of the proposed PFSF's operation.	The impacts for this alternative are considered similar to those identified for the proposed action.	Approximately two-thirds as many jobs would be created during the peak of construction as compared to the proposed action. Other impacts to economic structure (e.g., purchases and lease payments to the Skull Valley Band) are equivalent to those for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to economic structure of constructing and operating a facility at the Wyoming site are expected to be similar to the economic impacts at the remote Skull Valley site, except for those on the Skull Valley Band. Because this site is not on tribal trust land, the local Native American community would not benefit from lease payments, although members might benefit from employment because of the facility.	The potential effects on economic structure would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored. In addition the Skull Valley Band would not benefit from lease payments. The aggregate economic benefits to local communities resulting from the no action alternative are likely to be similar to those for the proposed action, although there would be no lease payments comparable to those received by the Skull Valley Band under Alternatives 1-4.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Economic benefits of the proposed action include State tax payments, local payroll, incentive payments to Tooele County, and other expenditures. Tax payments to the State of Utah are estimated to be $53.5 million, while incentive payments to Tooele County are estimated to be $91 million over the life of the project. Local payroll during operation of the proposed PFSF is estimated to be $81 million. Other local expenditures, including operations support and utilities, are estimated to be $70 million. The construction of steel liners for the storage casks could be accomplished locally or in Salt Lake City and could add an additional $747 million to anticipated local expenditures.				Economic benefits similar to those identified for a facility in Skull Valley would be expected to accrue to the state and local governments with jurisdiction over the Wyoming site.	In addition, the state of Utah and Tooele County would not receive the sales tax revenues and other economic benefits that would occur under Alternatives 1-4.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Land Use					
SMALL TO MODERATE. Impacts to land use for construction of the proposed PFSF would be expected to be quantitatively small (since a small proportion of the total land of the Reservation and an even smaller proportion of land within Skull Valley would be altered), even if the change would be qualitatively different. Construction of the proposed rail line could result in reduced availability of grazing resources, including access to livestock watering resources, during both construction and more particularly during operation.	The impacts for this alternative are considered similar to those identified for the proposed action.	This alternative would avoid adverse impacts to grazing activities in the area of the proposed rail corridor that would accompany the proposed action. Construction of the ITF would have minimal land use impacts since the site had been previously disturbed.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area. The impacts to land use of constructing and operating a facility at the Wyoming site are expected to be less than those at the remote Skull Valley site because of fewer land requirements for transporting SNF from the railroad mainline to a storage facility.	The potential effects on land use would depend on the site and the type of expansion required. The impacts at any given nuclear plant would be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Cultural Resources					
SMALL TO MODERATE. The Cooperating Federal Agencies have determined that activities associated with construction of the Skunk Ridge rail line would adversely affect parts of eight historic properties that have been evaluated as being eligible for inclusion on the *National Register.* Impacts to sections of these sites that lie within the rail right-of-way corridor will be mitigated prior to construction. During construction, temporary barricades will be constructed along the edge of the right-of-way at each historic property to prevent inadvertent	The impacts for this alternative are considered similar to those identified for the proposed action.	Construction of the facility at Site A, a new ITF at Timpie, and use of the Skull Valley Road for heavy haul transport will not directly impact any known archaeological, historical, or traditional resources, although it will alleviate the potential for impact to the Hastings Cutoff Trail segment on the west side of the valley and other cultural resource sites that have been identified in the vicinity of the rail corridor. Use of the Skull Valley Road without alteration will not impact known cultural resources that exist adjacent to the present roadway.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Although equivalent archaeological, historic, and Native American cultural resource studies have not been conducted at the Wyoming Site, it is believed, based on the site file and literature reviews, that impacts to cultural resources would be similar to or less than those for a facility in Skull Valley. The fact that a lengthy rail access is not required generally reduces the potential for adverse impacts to cultural resources.	Construction or expansion of at-reactor storage facilities would likely involve areas at the respective site that are already disturbed. Therefore, there would be no anticipated impacts to archaeological or historic resources. Construction on previously undisturbed land already under control of the associated power station could require further cultural resource field studies.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
loss of integrity to the portions of the properties being preserved outside the rail corridor. Construction activities for the rail line are considered to have a moderate impact on cultural resources. Operation of the rail line would have a small impact. No traditional cultural properties important to Federally Recognized Indian Tribes or culturally important natural resources have been documented at the site, or along the proposed rail corridor; consequently, construction and operation of the proposed PFSF is considered to have a small potential for affecting such resources or cultural values.					

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Human Health (Excluding SNF Transportation Impacts)					
Non-Radiological Impacts to Workers. SMALL. Occupational accidents during construction and operation of the proposed PFSF and rail line would be expected to result in no fatal injuries and possibly 92 nonfatal injuries associated with lost workdays during the 40-year life of the proposed PFSF.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts to workers for this alternative would be similar to those from the proposed action. The construction and operation of an ITF instead of a rail line would result in a similar number of potential nonfatal injuries associated with lost workdays (i.e., 92) over the life of the proposed PFSF.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to workers for this alternative would be similar to those from the proposed action. The primary differences would be related to a shorter length of rail line being constructed in Wyoming.	There would be small, incremental occupational risks to workers during the construction and operation of new or expanded at-reactor storage facilities.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Radiological Doses to Members of the Public. SMALL. The estimated annual dose to a hypothetical individual at the boundary of the proposed PFSF would be no more than 0.0585 mSv (5.85 mrem). This is about 2 percent of the dose from natural background radiation in the United States and is well within the 0.25 mSv/yr (25 mrem/yr) limit established by NRC regulations. The dose to the nearest resident would be no more than 3.56×10^{-4} mSv/yr (0.0356 mrem/yr).	The impacts to the public for this alternative would be similar to those from the proposed action. While the nearest existing resident is closer to Site B than to Site A, the doses at each site would be small and almost indistinguishable from one another.	The impacts to the public for this alternative would be similar to those from the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to the public for this alternative would be similar to those from the proposed action. However, there is a larger population near the Wyoming site and the nearest residence is closer than in Skull Valley. The dose to the nearest resident would be about 0.02 mSv/yr (2 mrem/yr) which is well within NRC regulatory limits.	Because of the relatively large reactor sites, any incremental off-site doses due to direct radiation exposure from additional on-site SNF storage are expected to be small, and when combined with the contribution from reactor operations, will be well within NRC regulatory limits.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Radiological Doses to Workers. SMALL. The average individual dose to workers engaged in SNF transfer operations at the proposed PFSF is estimated as 0.0433 Sv/yr (4.33 rem/yr) which is within the NRC's regulatory limit of 0.05 Sv/yr (5 rem/yr) for workers.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts to workers for this alternative would be similar to those from the proposed action, except transportation impacts, discussed below.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The impacts to workers for this alternative would be similar to those from the proposed action.	There would be small, incremental doses to workers during the construction and operation of new or expanded at-reactor storage facilities; however, these doses would be expected to be less than the proposed action and a small fraction of the doses from operation of the existing nuclear power station.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Human Health from Transportation of SNF					
Incident-Free Transportation. SMALL. The potential impacts for moving SNF by rail to the proposed PFSF are estimated to be no greater than the equivalent of a latent cancer fatality (LCF) of 0.0918 among members of the public along the rail routes for shipment of SNF to the PFSF over a 20-year period. The train crew would receive a dose no greater than the equivalent of an LCF of 0.00976.	The impacts for this alternative are considered similar to those identified for the proposed action.	The potential impacts are estimated to be no greater than the equivalent of an LCF of 0.094 among members of the public along the rail and ITF-PFSF truck routes for shipment of SNF to the PFSF over a 20-year period. This is slightly higher than the proposed action because of the doses to the public from transporting the casks to the site via Skull Valley Road. The impacts to workers would be higher than the proposed action due to worker exposures at the ITF. Based on PFS's current projections, occupational doses to individual workers who are involved both in activities at the proposed PFSF and the ITF could be as much as 5.3 rem annually; however, PFS is required to maintain doses below the NRC regulatory limit of 5.0 rem/yr, so the impact of worker doses should be small.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The annual impacts of shipping SNF by rail to the Wyoming site are estimated to be no greater than the equivalent of an LCF of 0.0854 for members of the public along the rail routes. The train crew would receive an annual dose no greater than the equivalent of an LCF of 0.0094.	Construction or expansion of at-reactor SNF storage facilities would require no transportation of radioactive materials beyond the boundaries of the existing nuclear station until a permanent geological repository is available. At that time, transportation impacts could be roughly comparable to those involved under Alternative 1.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Non-Radiological Accidents during Transportation. SMALL. The statistical number of vehicle-related accidents associated with the shipment of SNF by rail to Skull Valley is estimated to result in 1.48 injuries and 0.78 fatalities over a 40-year period for the proposed PFSF.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The statistical number of vehicle-related accidents during shipments to the Wyoming site is estimated to result in 1.72 injuries and 0.92 fatalities over a 40-year period.	Construction or expansion of at-reactor SNF storage facilities would require no transportation of radioactive materials beyond the boundaries of the existing nuclear station until a permanent geological repository is available. At that time, transportation impacts could be roughly comparable to those involved under Alternative 1.
Radiological Accidents during Transportation. SMALL. The potential impacts of accidents during the shipment of SNF by rail to the proposed PFSF are estimated to be no greater than the equivalent of an LCF of 0.042 among members of the public along the rail routes for shipments of SNF to the PFSF over a 20-year period.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts for this alternative are considered similar to those identified for Alternative 3.	The potential impacts of accidents during the shipment of SNF by rail to the Wyoming site are estimated to be no greater than the equivalent of an LCF of 0.0365 among members of the public along the rail routes for shipments of SNF to the PFSF over a 20-year period.	Construction or expansion of at-reactor SNF storage facilities would require no transportation of radioactive materials beyond the boundaries of the existing nuclear station until a permanent geological repository is available. At that time, transportation impacts could be roughly comparable to those involved under Alternative 1.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Environmental Justice					
SMALL. There are no disproportionately high and adverse impacts on low income or minority populations. All adverse effects that might disproportionately affect low income or minority populations would be small. Members of the Skull Valley Band would benefit from the proposed PFSF lease payments and employment.	There are no disproportionately high and adverse impacts on low income or minority populations	There are no disproportionately high and adverse impacts on low income or minority populations	. There are no disproportionately high and adverse impacts on low income or minority populations	Because this site is not on tribal trust land, the local Native American community would not benefit from lease payments, although members of local tribes might benefit from employment because of the facility. There are no disproportionately high and adverse impacts on low income or minority populations.	Construction or expansion of at-reactor storage facilities would commit only small amounts of additional land, in most cases already under the control of the associated nuclear power station. Other environmental impacts of construction and operations are negligible for any population. Higher electricity prices resulting from construction or expansion of at-reactor storage facilities would not fall more heavily on minority or low-income populations.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Noise					
SMALL. Noise from large-scale construction would be discernable, although probably not annoying, at outdoor locations near the nearest resident. Construction of a rail line near Interstate 80 would not add appreciably to existing noise levels within passing vehicles. Noise from operation would arise primarily from locomotives transporting casks through Skull Valley to the proposed PFSF. Because the proposed new rail line is on the western side of the valley, and away from the populated eastern side, and because trains are infrequent (about two trains per week) the noise is not expected to be annoying.	The impacts for this alternative are considered similar to those identified for the proposed action.	Noise impacts of hauling casks along Skull Valley Road would add noticeably to already existing noise levels there. Therefore, noise impacts to persons in the area would be greater than for the rail line option.	The impacts for this alternative are considered similar to those identified for Alternative 3.	There are no discernable differences between noise impacts at the Wyoming sites and the Utah sites. Noise from construction and operation would occur closer to more people at the Wyoming sites, but background noise is already higher there due the greater amount of human activity.	Some local noise impacts might occur near existing nuclear stations if at-reactor facilities need to be expanded; however, these impacts are expected to be small.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Scenic Qualities					
MODERATE. Construction and operation would have the direct impact of changing the scenic quality of Skull Valley by introducing an industrial presence into a largely undeveloped landscape. This change would represent small to moderate impacts to recreational viewers, residents of Skull Valley, and motorists traveling Skull Valley Road and Interstate 80.	Impacts for the proposed PFSF located at Site B would be similar to those at Site A. However, visual impacts could be slightly larger because of the additional 10 ha (24 acres) of land needed for the rail corridor to Site B.	Impacts would be smaller than under Alternatives 1 and 2 because no new rail line would be needed. However, impacts would still be moderate to some viewers.	The impacts for this alternative are considered similar to those identified for Alternative 3.	Visual impacts would be similar to the proposed action for the ISFSI. Visual impacts of transportation facilities would be less than for the proposed action because the rail line Is shorter, and the Wyoming site environs are somewhat more developed already.	Would result in smaller visual impacts than the other alternatives. Relatively minor visual impacts would be expected to occur at existing nuclear power plants.

Table ES.2 (continued)

Potential impacts of alternatives					
Alternative 1 (proposed action, Site A, rail)	**Alternative 2 (Site B, rail)**	**Alternative 3 (Site A, ITF)**	**Alternative 4 (Site B, ITF)**	**Wyoming alternative[a]**	**No action**
Recreation					
SMALL. There may be some delays or inconvenience to users wishing access to recreational resources and opportunities, particularly during construction, when access to these resources in Skull Valley would be adversely affected by the movement of construction materials and workers on Skull Valley Road. Impacts to recreational resources and opportunities would be smaller during operations.	The impacts for this alternative are considered similar to those identified for the proposed action.	The impacts of constructing and operating the proposed PFSF at Site A are identical to those for the proposed action. The impacts due to construction and use of the ITF and shipment of SNF by heavy-haul tractor trailer along Skull Valley Road are expected to be almost non-existent during construction (since the site of the ITF is close to Interstate 80 and is not expected to affect recreational resources) and should result in temporary delays during operations for users traveling along Skull Valley Road to access recreational resources in Skull Valley. This impact to Skull Valley Road during operations would not occur under Alternative 1 (the proposed action).	The impacts for this alternative are considered similar to those identified for Alternative 3.	The Wyoming site is located in a remote, sparsely populated area, and the impacts to recreation of constructing and operating a facility at the Wyoming site are expected to be similar to those at the remote Skull Valley site.	The potential effects on recreation would depend on the site and the type of expansion required. The impacts at any given nuclear plant would likely be substantially smaller than those expected for the Skull Valley site due to the much smaller quantity of SNF that would need to be stored.

[a]The Wyoming site has been compared to the proposed site (i.e., Site A in Skull Valley) only to determine if it is obviously superior to the Skull Valley site selected by PFS. See the discussion in the introduction to Chapter 7 of this FEIS.